CLAIMS

1. A hearing aid forming a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of an input sound signal into a

5 frequency band signal and subjecting one of the frequency band signals to noise, and outputting the Noise-Vocoded Speech Sound signal.

2. A hearing aid forming a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of an input sound signal into a

10 plurality of frequency band signals and subjecting the frequency band signals to noise, and outputting the Noise-Vocoded Speech Sound signals.

3. The hearing aid according to claim 1 or 2, wherein

a Noise-Vocoded Speech Sound signal in which a component of a

15 sound source signal is subjected to noise is generated by:

extracting a signal with a predetermined frequency band from the sound source signal by a first band filtering portion having a plurality of band filters;

extracting an amplitude envelope of each frequency band

20 signal by an envelope extracting portion having an envelope extractor;

applying a noise source signal to a second filtering portion having a plurality of band filters to extract a noise signal corresponding to the predetermined frequency band;

25 multiplying an output from the first band filtering portion by an output from the second band filtering portion in a multiplying portion; and

accumulating outputs from the multiplying portion in an adding portion.

4. The hearing aid according to any one of claims 1 to 3, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary can be changed at least through language.

5. The hearing aid according to any one of claims 1 to 3, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary can be changed through automatic language recognition.

6. A training device outputting a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of an input sound signal into a frequency band signal and subjecting one of the frequency band signals to noise, receiving a response from a trainee and outputting a result as to whether the response is correct or incorrect.

7. A training device outputting a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of a sound signal into a plurality of frequency band signals and subjecting the frequency band signals to noise, receiving a response from a trainee and outputting a result as to whether the response is correct or incorrect.

8. The training device according to claim 6 or 7, wherein a Noise-Vocoded Speech Sound signal in which a component of a

sound source signal is subjected to noise is generated by:

extracting a signal with a predetermined frequency band from the sound source signal by a first band filtering portion having a plurality of band filters;

5   extracting an amplitude envelope of each frequency band signal by an envelope extracting portion having an envelope extractor;

applying a noise source signal to a second filtering portion having a plurality of band filters to extract a noise signal 10   corresponding to the predetermined frequency band;

multiplying an output from the first band filtering portion by an output from the second band filtering portion in a multiplying portion; and

accumulating outputs from the multiplying portion in an 15   adding portion.

9.   The training device according to any one of claims 6 to 8, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary 20   can be changed at least through language.

10.   The training device according to any one of claims 6 to 8, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary 25   can be changed through automatic language recognition.

11.   A game device outputting a Noise-Vocoded Speech Sound signal that

is obtained by dividing at least one portion of a sound signal into a frequency band signal and subjecting one of the frequency band signals to noise, receiving a response from a game player and outputting a result as to whether the response is correct or incorrect.

5

12.   A game device outputting a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of a sound signal into a plurality of frequency band signals and subjecting the frequency band signals to noise, receiving a response from a game player and outputting

10   a result as to whether the response is correct or incorrect.

13.   The game device according to claim 11 or 12, wherein

a Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by:

15   extracting a signal with a predetermined frequency band from the sound source signal by a first band filtering portion having a plurality of band filters;

extracting an amplitude envelope of each frequency band signal by an envelope extracting portion having an envelope

20   extractor;

applying a noise source signal to a second filtering portion having a plurality of band filters to extract a noise signal corresponding to the predetermined frequency band;

multiplying an output from the first band filtering portion

25   by an output from the second band filtering portion in a multiplying portion; and

accumulating outputs from the multiplying portion in an

adding portion.

14. The game device according to any one of claims 11 to 13, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary can be changed at least through language.

15. The game device according to any one of claims 11 to 13, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary can be changed through automatic language recognition.

16. A sound output device, wherein

a Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by:

extracting a signal with a predetermined frequency band from the sound source signal by a first band filtering portion having a plurality of band filters;

extracting an amplitude envelope of each frequency band signal by an envelope extracting portion having an envelope extractor;

applying a noise source signal to a second filtering portion having a plurality of band filters to extract a noise signal corresponding to the predetermined frequency band;

multiplying an output from the first band filtering portion by an output from the second band filtering portion in a multiplying portion; and

accumulating outputs from the multiplying portion in an adding portion, and

wherein at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band
5   boundary can be changed at least through language.

17.   The sound output device according to claim 16, wherein

at least one of a number of the band filters for division into frequency band signals and a frequency of a frequency band boundary
10   can be changed through automatic language recognition.

18.   The hearing aid according to any one of claims 1 to 5, comprising a sound signal extractor for extracting only a sound component from an input signal,

15   wherein said at least one portion of an input sound signal is a signal of the sound component extracted by the sound signal extractor.

19.   The training device according to any one of claims 6 to 10, comprising a sound signal extractor for extracting only a sound
20   component from a signal,

wherein said at least one portion of a sound signal is a signal of the sound component extracted by the sound signal extractor.

20.   The game device according to any one of claims 11 to 15, comprising
25   a sound signal extractor for extracting only a sound component from a signal,

wherein said at least one portion of a sound signal is a signal of

24

the sound component extracted by the sound signal extractor.

21. The sound output device according to claim 16 or 17, comprising a sound signal extractor for extracting only a sound component from a
5 sound signal,

wherein the sound source signal from which the first band filtering portion extracts is a signal of the sound component extracted by the sound signal extractor.